CLAIMS

1. A vehicle system, comprising:

a diesel fueled engine having an exhaust manifold through which exhaust gasses flow;

an exhaust valve having at least first, second, third, and fourth unions, said valve directing exhaust gas from said first union to both said second and fourth unions and a second medium from said third union to said fourth union when in a first position, and directing said exhaust gas from said first union to both said second and fourth unions and said second medium from said third union to said second union when in a second position;

an injector coupled to said third union that injects said second medium;

a first emission control device coupled to said second union; and

a second emission control device coupled to said fourth union.

2. The system recited in claim 1 wherein said valve directs more exhaust gas to said second union than said third union when in said first position.

3. The system recited in claim 1 wherein said valve directs less exhaust gas to said second union than said third union when in said second position.

4. The system recited in Claim 1 wherein said first and second emission control devices store NO_x when the exhaust gas is lean and release and reduce stored NO_x when the exhaust gas is at stoichiometric or rich overall air-fuel ratio.

5. The system recited in Claim 1 wherein said second medium is a hydrocarbon carrying medium.

6. The system recited in Claim 1 wherein said injector is a reductant injector, and said reductant is urea.

7. The system recited in Claim 1 wherein said injector is an air-assisted injector.

8. The system recited in Claim 1 wherein said valve has a third position between said first and second position.

9. The system recited in Claim 8 wherein said third position directs exhaust gasses to both said second and fourth unions.

10. The system recited in Claim 1 further comprising a controller for periodically oscillating position of said valve to prevent soot buildup.

11. A method for controlling an engine, the engine having an exhaust through which exhaust gasses flow, said exhaust having at least a first an second catalyst and at least a first reductant injector, the method comprising:

providing a first portion of the exhaust gas flow to said first catalyst and a second portion of the exhaust gas flow to said second catalyst;

operating in a first mode where said first portion is greater than said second portion;

during at least a first interval while in said first mode, injecting reductant from said first reductant injector into said second portion of exhaust gas flow;

operating in a second mode where the second portion is greater than said first portion; and

during at least a second interval while in said second mode, injecting reductant from said first reductant injector into said first portion of exhaust gasses.

12. The method recited in Claim 11 wherein said reductant is diesel fuel.

13. The method recited in Claim 11 wherein said reductant in said second portion creates a stoichiometric or rich air-fuel ratio to react NO_x stored in the second catalyst, with NO_x in said first portion being stored in the first catalyst.

14. The method recited in Claim 13 wherein said reductant in said first portion creates a stoichiometric or rich air-fuel ratio to react NO_x stored in the first catalyst, with NO_x in said second portion being stored in the second catalyst.

15. The method recited in Claim 14 wherein operation alternated between at least said first and second mode based at least on an estimate of NO_x stored in at least one of the first and second catalysts, and temperature of at least one of the first and second catalysts.

16. The method recited in Claim 15 wherein said at least one temperature is measured from a temperature sensor

17. A method for controlling an engine, the engine having an exhaust through which exhaust gasses flow, said exhaust having at least a first an second NO_x storage catalyst and at least a first fuel injector, the method comprising:

providing a first portion of the exhaust gas flow to said first catalyst and a second portion of the exhaust gas flow to said second catalyst;

operating in a first mode where said first portion is greater than said second portion;

during at least a first interval while in said first mode, injecting reductant from said first fuel injector into said second portion of exhaust gas flow without injecting fuel from said first fuel injector into said first portion of exhaust gas flow, said fuel in said second portion creating a stoichiometric or rich air-fuel ratio to react NO_x stored in the second catalyst, with NO_x in said first portion being stored in the first catalyst;

operating in a second mode where the second portion is greater than said first portion; and

during at least a second interval while in said second mode, injecting fuel from said first fuel injector into said first portion of exhaust gasses without injecting fuel from said first fuel injector into said second portion of exhaust gasses, said fuel in said first portion creating a stoichiometric or rich air-fuel ratio to react NO_x stored in the first catalyst, with NO_x in said second portion being stored in the second catalyst.

18. A vehicle system comprising:

a diesel fueled engine having an exhaust manifold through which exhaust gasses flow;

an exhaust conduit coupled to said exhaust manifold having a first and second outlet;

an injector coupled to exhaust conduit that injects said second medium;

a first emission control device coupled to first outlet;

a second emission control device coupled to second outlet, said second emission control device having a smaller capacity for retaining at least one exhaust emission constituent; and

a controller for operating the exhaust gas flow to have an overall lean air-fuel ratio for a first duration when a majority of said exhaust gas flows to said first catalyst, and operating the exhaust gas flow to have an overall lean air-fuel ratio for a second duration, when said majority of exhaust gas flows to said second catalyst, said first duration being longer than said second duration.

19. The vehicle system of claim 18 wherein said exhaust gas constituent is NO_x.

20. The vehicle system of Claim 18 wherein said exhaust conduit further comprises 2 vacuum valves and a vacuum source.

21. A system comprising:

an engine having an exhaust system through which exhaust gasses flow;

a first and second emission control device in said exhaust system of said engine;

an injector in said exhaust system that injects a reductant;

an exhaust valve in said exhaust system upstream of said first and second emission control device, said valve having at least a first and second position, said first position creating a first path for said reductant from said injector to reach said first emission control device, and a second position creating a second path for said reductant from said injector to reach said second emission control device.

22. The system of claim 1 having no more than one injector coupled in said exhaust system.

23. The system of claim 1 wherein said first and second emission control device are arranged in parallel.

24. The system of claim 1 wherein, when said valve is in said first position, some exhaust gas flow leaks to said second emission control device, and when said valve is in said second position, some exhaust gas flow leaks to said first emission control device.

25. The system of claim 1 wherein said engine is a diesel engine.

26. The system of claim 1 wherein said reductant contains diesel fuel.

27. The system of claim 1 wherein said reductant contains ammonia.

28. The system of claim 1 further comprising a control unit, said control unit measuring an engine operating parameter and sending a signal to said valve based on said measured operating parameter, said signal adjusting a position of said valve.

29. A method for controlling an emission system, the system having an engine and an exhaust through which exhaust gasses flow, said exhaust having at least a first and second catalyst and at least one reductant injector, the method comprising:

operating in a first mode where exhaust gasses flow to said first catalyst, and during at least a first interval while in said first mode, injecting reductant from the reductant injector into the exhaust system that reaches said second catalyst; and

operating in a second mode where exhaust gasses flow to said second catalyst, and during at least a second interval while in said second mode, injecting reductant from the reductant injector into the exhaust system that reaches said first catalyst.